

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Docket Number: DN A01448

Application of: Carl Michael Hesler et al.

Serial No: 10/699,900 : Group Art Unit: 1714

Filed: November 3, 2003 : Examiner: Callie E. Shosho
(Priority to 12-Nov-02)

Title: AQUEOUS INKJET INK COMPOSITION

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. § 1.131

We, Carl Michael Hesler and Eric Alvin Johnson, declare and say that:

1. We are the co-inventors of original claims 1-6 and revised claims 1-12 of the above-identified patent application.
2. Prior to September 27, 2002, we had completed the invention as described and claimed in the subject application in the United States of America, as evidenced by the following:
 - a. Prior to September 27, 2002, having earlier conceived of the idea of an aqueous inkjet ink composition for printing on a hydrophobic surface, Carl Michael Hesler prepared an inkjet ink composition in the laboratory at 767 Norristown Road, Spring House, Pennsylvania, as evidenced by pages 41 - 43 from Mr. Hesler's notebook attached hereto as Exhibit A.

CERTIFICATE OF TRANSMISSION

I certify that this paper, along with any referred to as being attached or enclosed, is being facsimile transmitted to (703) 872-9311 under 37 CFR § 1.8 on the date indicated below and is addressed to Commissioner for Patents, PO Box 1450, Alexandria, VA 22313-1450.

MARCH 24, 2006
Date of Deposit


Signature of Person Mailing Paper

KARL STAUSS
Name of Person Mailing Paper

b. On page 41 of Exhibit A, an inkjet ink was prepared by mixing: (a) an aqueous emulsion polymer having a glass transition temperature (T_g) of from 40 °C to 80 °C (binder); (b) a pigment dispersion (Acryjet® Black-357 from Rohm and Haas Company), (c) an anionic surfactant (Rhodacal™ DS-4 from Rhodia) and (d) a water-soluble surface agent (triethylene glycol monomethyl ether).


c. On page 42 of Exhibit A, the above-identified inkjet ink was printed on a hydrophobic surface (vinyl) with an inkjet printer and tested for quality attributes as indicated by the test data on page 42 of Exhibit A.

3. Each of the dates deleted from Exhibit A is prior to September 27, 2002.

4. The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issuing thereon.

Respectfully submitted,


Carl Michael Hesler

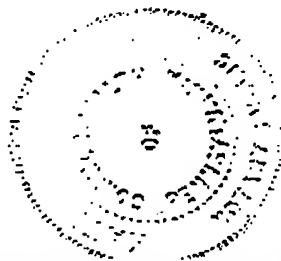
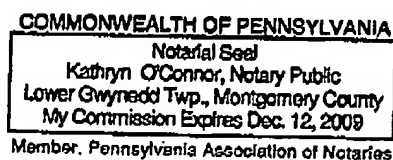

Eric Alvin Johnson

3/24/2006
Date

3/24/2006
Date

Sworn to and subscribed before me this 24th day of March, 2006.


Notary Public



U.S. Serial No. 10/699,900 Affidavit

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We are switching the emphasis of our vinyl wide format program from the thermal type printhead (En Cad) to the piezo type (Epson 3000 / Roland). We have attempted to push our En Cad inks through the Epson 3000 printer but the initial results show that we have some issues to address. The primary problem was the flow over the vinyl.

We ran the physical properties of both the Epson and Roland inks. They are:

Roland (FJ50 or FJ 40)

	C	Y	M	K
Solids	4.8	9.3	7.3	12.7
Surface tension	34.8	33.8	35.4	34.1
Viscosity	3.6	3.6	3.5	3.7
PS	116	98	93	72
pH	9.7	9.1	9.2	8.9

Epson (3000)

	C	Y	M	K
Solids	6.0	3.6	10.2	10.0
Surface tension	34.5	31.7	35.0	33.8
Viscosity	3.7	3.5	3.6	3.5
pH	9.3	8.9	9.2	9.1

We are beginning our evaluation of the piezo type printers with our vinyl ink formulations. The first set of inks will be the same as the last set of inks that En Cad evaluated on their thermal printer. Our initial evaluation will be with the Epson 3000 printer. The series is identified as CH2558.

CH2558

	-1	-2	-3	-4
Water	56.2	56.2	56.2	55.4
Glycerol	5.0	5.0	5.0	7.5
EG-1	2.5	2.5	2.5	
2-pyrol	1.7	1.7	1.7	1.7
TEGME	3.3	3.3	3.3	3.3
DS-4	1.3	1.3	1.3	1.3
AJC-157(IRC-86)	15.0			
AJM-127		15.0		
AJY-1547			15.0	
AJB-357				15.0
Binder	13.3	13.3	13.3	13.3
104E	1.75	1.75	1.75	2.5
Total	100.0	100.0	100.0	100.0

Signed: _____

Date: _____

Witnessed By: _____

Page: _____

to _____

Rohm and Haas Company Company Confidential

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We are sampling 125 g of the TREM LF-40 binder to Formulabs - Iberica. The sample ID is CH2559.

In addition to starting the piezo work I am also returning to the NovaJet printer to print a few more vinyl samples. I remade the 2558 formulations and will prep the vinyl samples this week.

We successfully printed the 2558 series inks on the Epson 3000 (piezo type) printer. There are some lines in the large block print areas that could be caused by clogs in the printhead. They are particularly visible in the black, cyan and yellow blocks (. We need to replace the printheads and retry the prints. There is a color bleed issue with the black inks (7.5% glycerol) that is severe with the magenta and noticeable with the cyan and yellow. The print samples were flash dried in the 150° C oven for 1 minute. Adhesion seems reasonable.

We are going to retrofit one of the Epson printers with a heated platen so that we can improve ink flow over the vinyl during the print process. This should occur over the next couple of weeks.

In the interim we can begin formulation variations that will address the color bleed issue initially.

We received the ICP results on the 2557 series inks. We submitted the ink and the serum collected from centrifuged inks for metal content analysis (Ca, Fe, Mg).

The results are:

	Ca	Fe	Mg	ppm
1. CH 2557-1	10.2	38.9	2.5	
2. CH 2557-2	23.4	25.5	2.0	
3. CH 2557-3	28.2	13.2	8.3	
4. CH 2557-4	3.4	2.8	1.8	

Centrifuge samples

5. CH 2557-1A	5.8	21.7	0.9
6. CH 2557-2A	16.8	21.0	1.6
7. CH 2557-3A	21.5	2.9	1.8
8. CH 2557-4A	1.9	0.2	0.8

Signed: 

Date: _____

Witnessed By: 

Printed: _____

to